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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/620,183	07/15/2003	Lanny D. Schmidt	110.02090101	8654

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EXAMINER
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BULLOCK, IN SUK C

ART UNIT	PAPER NUMBER
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1764

DATE MAILED: 07/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>		<b>Applicant(s)</b>	
	10/620,183		SCHMIDT ET AL.	
	<b>Examiner</b>		<b>Art Unit</b>	
	In Suk Bullock		1764	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 18 April 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-75 is/are pending in the application.
- 4a) Of the above claim(s) 57-75 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-56 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                                   | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>12/12/03, 1/16/04, 6/1/04, + 8/17/05,</u>                                 | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Election/Restrictions***

Applicant's election with traverse of Groups I and II in the reply filed on April 18, 2006 is acknowledged. The traversal is on the ground(s) that the groups of invention are interrelated and that there are few species so that an evaluation in one search can be performed without placing undue burden on the Examiner. This is not found persuasive because no proof was offered to counter the position taken by the examiner that the different inventions have different effects.

The requirement is still deemed proper and is therefore made FINAL.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 18 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

There is no antecedent basis for "the alkene" as recited in the claim because the reactant is a fuel source and not "alkene". It appears that the claim should recite "the fuel source" in place of "the alkene".

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-5, 7, 8, 10, 12-17, 22-25, 29, 33, 36-40, 43-46, 50, and 54 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. 5,905,180 to Yokoyama et al. (hereinafter "Yokoyama").

Yokoyama discloses a process for producing mono-olefins from paraffin feed including linear and branched alkanes having C<sub>2</sub> to C<sub>20</sub> carbon atoms. The feed is preheated and vaporized. The feed is contacted with molecular oxygen under auto thermal oxidative dehydrogenation conditions in the presence of a platinum catalyst modified with tin supported on a ceramic foam monolith. The catalyst contact time ranges from 0.1 to 20 milliseconds. See col. 1, lines 11-14; col. 2, lines 18-26; col. 3, lines 41-44; col. 4, line 35 through col. 5, line 56.

It is noted that Yokoyama does not explicitly disclose forming a film of the fuel source on a wall of the reactor. However, a position taken by the examiner is that the process of Yokoyama inherently would produce a film of the fuel source because Yokoyama discloses preheating and vaporizing the feed. Once the feed is vaporized into the reactor, a thin film would inherently form on the reactor wall.

With respect to the production of alpha-olefin, since the process of the reference is essentially the same as the claimed process, alpha-olefin would inherently be one of the products produced by the process of Yokoyama.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

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consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 6, 9, 11, 18-21, 26-28, 30-32, 34, 35, 41, 42, 47-49, 51-53, 55, and 56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yokoyama et al. (hereinafter "Yokoyama") in view of WO 00/14180 (hereinafter "WO").

Yokoyama discloses a process for producing mono-olefins from paraffin feed including linear and branched alkanes having C<sub>2</sub> to C<sub>20</sub> carbon atoms. The feed is preheated and vaporized. The feed is contacted with molecular oxygen under auto thermal oxidative dehydrogenation conditions in the presence of a platinum catalyst modified with tin supported on a ceramic foam monolith. The catalyst contact time ranges from 0.1 to 20 milliseconds. See col. 1, lines 11-14; col. 2, lines 18-26; col. 3, lines 41-44; col. 4, line 35 through col. 5, line 56.

Yokoyama does not disclose: (1) carrying out the process with water and (2) the claimed percent of fuel source which forms a specific product.

The WO reference discloses employing a diluent which can be any gas or vaporizable liquid which is substantially unreactive in the oxidative dehydrogenation process. Diluents include nitrogen and steam among others. See page 8, line 23 through page 9, line 2.

Use of a diluent in the oxidative dehydrogenation process is conventional and well known as shown by the WO reference. Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of Yokoyama by using a diluent such as steam as disclosed by the WO

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reference because diluent aids to minimize undesirable secondary reactions and helps to expand the non-flammable regime for mixtures of paraffin hydrocarbon and oxygen.

With respect to the claimed percent of fuel source which forms a specific product, i.e., at least 15% of the fuel source that is reacted forms propylene (claim 20), it is expected that the process of Yokoyama would produce an overlapping range of conversion/selectivity to a specific product since the process of Yokoyama is essentially the same as the claimed process. One having ordinary skill in the art would recognize that the product composition is dependent upon paraffin(s) selected as a feed, the ratio of feed to oxygen, and the process conditions. Thus, depending upon desired results, a skilled artisan can manipulate process parameters to achieve specific product composition.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to In Suk Bullock whose telephone number is 571-272-5954. The examiner can normally be reached on Monday - Friday 6:00-2:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on 571-272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

I.B.



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